IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Appl. No.: 10/575,607

Applicant: Lind et al

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Examiner: Davis D. Hwu

Docket No.: 1340US

Commissioner for Patents

P.O. Box 1450

Alexandria VA 22313-1450

APPELLANT'S BRIEF UNDER 37 CFR 1.192 A

ATTENTION: Board of Patent Appeals and Interferences

I REAL PARTY IN INTEREST

The real part in interest in this case is Graco Minnesota Inc., assignee of the above-identified application.

II RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III STATUS OF CLAIMS

1. Claims 1-7 are rejected and the rejection of those claims was appealed in the notice of July 2, 2010.

IV STATUS OF AMENDMENTS

The amendment filed February 17, 2010 has been entered.

V SUMMARY OF THE CLAIMED SUBJECT MATTER

As shown in Figure 1, a 100Kohm NTC thermistor 10 is placed in the brush holder 12 of the electric motor 14 in the sprayer 16 to monitor the temperature of the sprayer 16. The processor 18 on the control board 20 monitors the thermistor 10 output. At temperatures well below the limits of the motor 14, the sprayer 16 operates at the full selected pressure and variable speed for optimum performance.

As the temperature approaches allowable limits, several performance cutbacks can be used to prevent overheating. The preferred method is to gradually reduce the controlled pressure. If the temperature continues to rise, the control 20 switches to on/off or deadband control. This mode cools better with small spray tips because the fan speed (in the motor) is higher and there is a considerable amount of off time. If the temperature continues to rise in spite of these measures, the control 20 shuts the unit down.

An additional enhancement to the system is to include a requirement in the control logic that control pursuant to the various trip temperatures takes place on while the motor 14 is running. For instance, if the trip point for on/off operation is 140°C, the control 20 would only change to on/off mode after that temperature had been exceeded for 1 minute of motor on time. This helps to compensate for the fact that motor temperature as seen by the thermistor will continue to rise for a bit after the motor has stopped.

1. A method for thermally protecting the electric motor 14 (p. 3, line 4) in a variable speed electric paint sprayer (p. 3, lines 3-7) having a control 20 and a temperature (p. 3, line 4), and which operates to maintain a user-selected controlled pressure (p. 3, line 7), the method comprising:

monitoring the temperature of said electric motor (p. 3, line 4); and

reducing said controlled pressure from said user-selected controlled pressure and continuing to spray when said electric motor temperature exceeds a predetermined level (p. 3, lines 8-13).

3. A method for thermally protecting the electric motor (p. 3, line 4) in a variable speed electric paint sprayer (p. 3, lines 3-7) having a control and a temperature (p. 3, line 4), and which operates to maintain a user-selected controlled pressure (p. 3, line 7), the method comprising:

monitoring the temperature of said motor (p. 3, line 4); and

changing the control of said motor from variable speed control to on/off control when said motor temperature exceeds a predetermined level (p. 3, lines 8-13).

5. A method for thermally protecting the electric motor (p. 3, line 4) in a variable speed electric paint sprayer (p. 3, lines 3-7) having a control and a temperature (p. 3, line 4), and which operates to maintain a user-selected controlled pressure (p. 3, line 7), the method comprising:

monitoring the temperature of said motor (p. 3, line 4);

reducing the controlled pressure from said user-selected controlled pressure and continuing to spray when said motor temperature exceeds a first predetermined level (p. 3, lines 8-13); and

changing the control of said motor from variable speed control to on/off control when said motor temperature exceeds a second predetermined level (p. 3, lines 8-13).

VI GROUNDS OF REJECTION TO BE REVIEWED

Whether claims 1-7 are unpatentable under 35 U.S.C. §103(a) over Allison et al in view of Bearden et al.

VII ARGUMENTS

REJECTION UNDER 35 U.S.C 103(a)

Applicants' invention provides a method for allowing electric sprayers to operate efficiently in such a way that performance is slightly reduced while maintaining spraying in the event the motor should reach an elevated temperature. Applicants' invention as defined in claim 1 allows the unit to continue spraying but at a controlled reduced pressure level which will reduce the temperature of the unit. There is no suggestion in either of the cited references of record to this controlled pressure stepdown in response to attainment of a predetermined temperature to allow continued spraying. In particular, Allsion is a high pressure water blaster/sprayer that is not designed for spraying abrasive materials (abrasives are injected downstream of the pump (col. 1, lines 40-45) and senses the temperature of the oil not the electric motor as claimed, shutting off the motor when the high oil temperature has been reached.

Bearden reduces the speed of the motor in response to an over-temperature condition rather than the controlled pressure. When Applicants' invention reduces the controlled pressure, the speed of the sprayer may not be reduced at all depending on the flow and load. Even if the cited references were properly combined (and there is no reason why one skilled in the art would combine a water cutter with a downhole submersible pump other than Applicants' disclosure) the claimed limitations would not be met – namely a variable speed paint sprayer which reduces the control pressure in response to a temperature condition.

Claim 2 is respectfully submitted to be patentable for the reasons set forth with respect to claim 1 and additionally for the limitations set forth therein. Baer does not disclose the time delay claimed.

The rejection of claim 3 has similar defects and additionally does not show changing to on/off (deadband) control in response to a temperature condition.

Similarly, claims 6 and 7 are respectfully submitted to be patentable for the reasons set forth with respect to claim 5 and additionally for the limitations set forth therein.

Accordingly, it is also respectfully submitted that the rejection under 35 U.S.C 103(a) of claims 1-7 is in error for the reasons set forth above and should be reversed.

VIII APPENDIX OF CLAIMS

1. A method for thermally protecting the electric motor in a variable speed electric paint sprayer having a control and a temperature, and which operates to maintain a user-selected controlled pressure, the method comprising:

monitoring the temperature of said electric motor; and

reducing said controlled pressure from said user-selected controlled pressure and continuing to spray when said electric motor temperature exceeds a predetermined level.

2. The method of claim 1 wherein said change occurs only after said motor temperature has exceeded said predetermined level for a predetermined length of time of motor operation.

3. A method for thermally protecting the electric motor in a variable speed electric paint sprayer having a control and a temperature, and which operates to maintain a user-selected controlled pressure, the method comprising:

monitoring the temperature of said motor; and

changing the control of said motor from variable speed control to on/off control when said motor temperature exceeds a predetermined level.

4. The method of claim 3 wherein said change occurs only after said motor temperature has exceeded said predetermined level for a predetermined length of time of motor operation.

5. A method for thermally protecting the electric motor in a variable speed electric paint sprayer having a control and a temperature, and which operates to maintain a user-selected controlled pressure, the method comprising:

monitoring the temperature of said motor;

reducing the controlled pressure from said user-selected controlled pressure and continuing to spray when said motor temperature exceeds a first predetermined level; and

changing the control of said motor from variable speed control to on/off control when said motor temperature exceeds a second predetermined level.

6. The method of claim 5 wherein said second predetermined level is higher than said first predetermined level.

7. The method of claim 5 wherein said change occurs only after said motor temperature has exceeded said predetermined level for a predetermined length of time of motor operation.

IX EVIDENCE APPENDIX

NONE

X RELATED PROCEEDINGS APPENDIX

NONE

Respectfully submitted,

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Douglas B. Farrow
Registration No. 28582
Graco Inc.
PO Box 1441
Minneapolis, MN 55440
(612) 623-6769
pto@graco.com